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ABSTRACT

The Task Force on Enrollment Growth Planning (TFEGP), authorized in 1992 by the State Board of Directors for Community Colleges (SBDCC) of Arizona, includes representatives from each community college as well as staff from SBDCC office. The Task Force was created to prepare enrollment growth estimates for community colleges through the year 2010; to develop alternative strategies to accommodate the anticipated enrollment growth; and to provide recommendations. Using the Arizona Enrollment Demand Model, the Task Force estimated that community college enrollment demand would increase by approximately 95,000 students (62%) between 1990 and 2010, which would be equivalent to the services provided by an additional 11 to 14 average-sized Arizona community colleges. To deal with the projected growth in enrollment demand, the Task Force proposed a variety of strategies described under the following headings: Strategic Planning for Facilities, Equipment, and Staffing; Collaborative Efforts among Institutions; Confronting the Challenge of Growth; and Financial Support. This report reviews the enrollment growth estimates and the methodologies used to arrive at these estimates, as well as describing the strategies to accommodate the anticipated growth. The report also details specific recommendations to each of the following bodies: the Arizona Board of Regents; the Governor and State Legislature; the SBDCC; and the District Governing Boards and colleges. An appendix provides a report of the Task Force's Statistics subgroup, describing enrollment growth models reviewing district-prepared enrollment projections, and detailing enrollment projections by program type, and student age, gender, ethnicity. Data tables, graphs, and pie-charts are included. (PAA)

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ARIZONA COMMUNITY COLLEGES

Report of the Task Force on Community College Enrollment Growth Planning

August 1993

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Report of the Task Force
on
Community College Enrollment Growth Planning

August 1993

State Board of Directors for Community Colleges of Arizona
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ARIZONA
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August 5, 1993

Mr. Gary L. Watson, Chairman
Arizona Community College Board
Century Plaza, Suite 1220
3225 North Central Avenue
Phoenix, Arizona 85012

Dear Mr. Watson:

It is a privilege to present the report of the Task Force on Community College Enrollment Growth to you and the State Board of Directors for Community Colleges of Arizona. This Task Force, consisting of representatives of the State Office and each of Arizona's community colleges, has devoted many hours to research, deliberation, debate, and writing to fashion the enclosed report. It was, truly, a group effort.

Enrollment growth on the scale envisioned by the Task Force would be a formidable challenge in even the best of times. In these times of modest economic growth, the Task Force concludes that it is essential that there be genuine collaboration and cooperation among all sectors of education. It is in this spirit that the conclusions, strategies, and recommendations contained in this report are presented.

It is the hope of the members of the Task Force that each of the parties addressed in the recommendations: The Arizona Board of Regents; the Governor and Legislature; the State Board; and the District Governing Boards, will carefully consider the report in its entirety and that the report will be a springboard to effective joint action to address the challenge of enrollment growth.

Respectfully submitted,

Donald E. Puyear
Executive Director

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Report of the Task Force on Community College Enrollment Growth Planning August 1993

SUMMARY

The Task Force on Community College Enrollment Growth Planning, which includes representatives of each community college and staff from the State Board office, has been requested to accomplish three closely-related tasks: (1) to prepare enrollment growth estimates for community colleges through the year 2010; (2) to develop alternative strategies to accommodate the anticipated growth; and (3) to prepare a report detailing the projections and recommendations developed by the Task Force.

Enrollment Growth Estimates

Community College enrollment growth demand was projected to increase approximately 95,000 students (62%) between 1990 and 2010 by the Arizona Enrollment Demand Model developed for the Arizona Board of Regents. The Task Force considered this and alternative enrollment projection models and concluded that the Arizona Enrollment Demand Model provided projections on the conservative side of a range of reasonable estimates. The Task Force projected a gain in enrollment demand of 62% to 90%, with the most likely range between 62% to 75%. Another way of visualizing this growth is to consider that the most likely projected enrollment growth is equivalent to the services provided by between 11 to 14 additional average-sized (8000-student) Arizona Community Colleges.

Strategies

The Task Force proposed strategies in four areas: (1) strategic planning for facilities, equipment, and staffing; (2) collaborative efforts among institutions; (3) confronting the challenge of growth; and (4) financial support.

Strategic Planning for Facilities, Equipment, and Staffing. Significant additional resources must be provided to community colleges if they are to succeed in serving large numbers of additional students. While the increased population that is a principal factor in driving the projected enrollment growth will bring with it increased revenues, it also will bring with it an increased demand for all types of governmental services. There is no reasonable expectation that resources can be provided to community colleges on the scale that would be required to replicate sixty to ninety percent of the present physical plant, equipment, and staff in the coming seventeen years while maintaining and modernizing the present resources. Community colleges must develop innovative new ways to deliver and fund community college services.

Community college districts should develop and articulate specific strategic plans addressing facilities, equipment, and staffing required to accommodate anticipated enrollment growth. The State Board should integrate the strategic plans developed by the districts, articulate the needs of the colleges, and develop an effective process to get the resources necessary to carry out the plans.

Collaborative Efforts Among Institutions. The Task Force delineated a variety of ways community colleges can expand upon current cooperative efforts with other community colleges, other institutions of higher education, and with the public schools.

Confronting the Challenge of Growth. A number of basic changes in the operation of community colleges and in certain basic assumptions regarding their mission were recommended. The Task Force calls for community colleges to sharpen the focus of the community college mission; complete a review of course offerings; create a new paradigm for community college programs that includes a variety of methods of providing instruction; coordinate occupational programs with high schools; emphasize program completion; improve university transfer advising; facilitate transfer among community colleges; assess instructional productivity; develop a student information system; and evaluate the academic calendar to provide for year-round use of resources.

Financial Support. New investments from all partners -- taxpayers, employers, and students -- will be necessary to adequately finance Arizona's community colleges in the coming years. The Task Force suggested the following financial strategies: student financial aid both from State and private sources; alternative funding models; and a competitive grant program.

Recommendations

Policy Issues Addressed to the Arizona Board of Regents through the Commission on Public Higher Education Enrollment Growth Planning.

No matter what strategies are followed at the university level, community colleges will be faced

with an increased proportion of the lower division undergraduate students who ultimately plan to receive a baccalaureate degree. Arizona is fortunate that basic policies and procedures for articulating transfer of students from community colleges to the universities are in place and considerable progress has been made in this area in recent years. But, these policies and procedures will need to be continued and refined.

The Task Force recommends that the Arizona Board of Regents establish a policy on community college transfer students that contains the following essential elements:

- *As a matter of public policy, space must be made to accept into state supported baccalaureate programs those students who have attended Arizona community colleges for their lower division work, and have done well. Students who have graduated from a transfer curriculum at an Arizona Community College should be guaranteed admission to an Arizona Public University campus as an upper-division student.*
- *The current statewide articulation process needs to be extended to assure that credits acquired by students completing an Arizona Community College transfer program will apply toward a baccalaureate degree and work done at the community college will not have to be repeated at the university.*
- *Admission policies should ensure that community college transfer students receive equitable treatment with native university students in competing for admission to majors at the university.*

Recommendations Addressed to the Governor and State Legislature regarding State Aid for Community College Facilities and Operations.

Expansion of community college participation in the education of students ultimately seeking baccalaureate degrees, and in the preparation of students gaining or refining occupational skills, are cost-effective strategies for the State. They must not, however, be considered to be cost-free alternatives.

In recent years the State's participation in the expenses of community college facilities and operations has been deteriorating when considered as a percentage of total cost. This erosion of State participation is placing an excessive load on the local tax base and on the students. A recent report in a national publication lists Arizona 42nd among the 43 states studied with respect to percentage of state funding for community colleges. The same study listed Arizona as 7th among the states with respect to percentage of local funding for community colleges.

Community College Districts serving 83 percent of community college students (FTSE) are presently at their taxing limits. When the State fails to provide adequate funding for the expense of community college programs, the only choices most District Governing Boards have are to increase student fees, reduce services, or both. Student tuition and fees now exceed State aid in the two urban districts.

The Task Force concludes that a systematic increase in State funding for both operations and capital expansion is justified and is required if community colleges are to be able to accommodate the enrollment increases projected by both the Commission and the Task Force. The Task Force recommends that State funding for Arizona Community Colleges be increased to meet this challenge.

Recommendations Addressed to the State Board of Directors for Community Colleges of Arizona.

Implementing the strategies suggested in this report will require state-level advocacy, leadership, and coordination. The State Board has an opportunity to show how state-level leadership that is sensitive to both the varying needs of the districts and the need for a clear voice speaking for community colleges at the state level can facilitate cooperation within the system of community colleges. The State Board also must provide effective advocacy for community colleges with the public, the executive, the legislature, and with other educational systems. Community colleges cannot adequately address enrollment growth in isolation. The State Board will need to collaborate with the Arizona Board of Regents and the State Board of Education in the development of coordinated plans for Arizona. State Board leadership will be critical to the future success of Arizona's community colleges.

Recommendations Addressed to District Governing Boards and Colleges.

District Governing Boards and the Colleges they govern clearly have the most difficult tasks suggested in this report. They are being called on to be innovative and, simultaneously, to coordinate decisions that they have previously made unilaterally. To serve their constituencies better, they will need to be aggressive in seeking partnerships and cooperative arrangements. They will ultimately have to carry out the strategies, many of which require significant changes in practices that have become well established in many localities. They will have to develop and interpret a new understanding of the mission of Arizona's community colleges to their publics. These are, indeed, difficult tasks. Yet, if Arizona's community colleges are to serve Arizona in the best fashion, these tasks must be undertaken and successfully completed.

Task Force Members

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I. INTRODUCTION

The Task Force on Community College Enrollment Growth Planning was authorized by the State Board of Directors for Community Colleges of Arizona in October, 1992. It includes representatives of each community college, who were nominated by their respective president or chancellor, and staff from the State Office.

At the time the Task Force was formed a Commission on Public Higher Education Enrollment Growth Planning (called the Commission from now on), sponsored by the Arizona Board of Regents, was studying the enrollment growth plans for the universities. The Regents understood that university enrollment and community college enrollment issues are closely related. A change in university enrollment policies would quickly have an impact on community college enrollments. For this reason, the membership of the Commission included four community college representatives: a State Board member and three local governing board members.

It quickly became apparent that additional information on community college enrollment planning would be required if community college concerns were to be reflected adequately in the Commission's deliberations. This prompted the appointment of this Task Force. But the charge to the task force went well beyond supplying information to the Commission. Economic development, global competitiveness, changing job readiness requirements, the need for workers to upgrade skills continuously, and other factors affecting the

full range of community college programs also present a formidable challenge to planning. The Task Force was requested to do three closely-related tasks:[1]

1. *Prepare enrollment growth estimates for community colleges through the year 2010. In making these enrollment estimates, the task force is to review current enrollment projections prepared by the districts, the enrollment projection model used by the Board of Regents, and other sources of enrollment projection information identified by the task force. These projections should be as detailed as the data will support and should address, as a minimum, enrollment demand for the state as a whole, for each district, by program type (transfer, occupational, other), by gender, and by ethnic classification.*

2. *Develop alternative strategies to accommodate the anticipated growth. In considering these alternative strategies, the task force should pay particular attention to possible effects on minority populations and devise alternatives that have minimum adverse effects on these populations. Make specific recommendations regarding desirable strategies for accommodating the projected enrollment growth that address both programmatic and facilities issues.*

3. *Prepare a report detailing the projections and recommendations developed by the task force. A preliminary report, focusing on transfer programs, will be required by mid-May, 1993[2]. The task force should plan to submit its final report to the Executive Director of the State Board of Directors for Community Colleges of Arizona by August 1, 1993. Interim progress reports also may be issued at the discretion of the task force.*

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[1]Memorandum from Dr. Donald E. Puyear, Executive Director, State Board of Directors for Community Colleges of Arizona, dated November 23, 1992, establishing the Task Force.

[2]Subsequent developments required that the preliminary report be completed in February, 1993.

II. ENROLLMENT GROWTH ESTIMATES

The Arizona Enrollment Demand Model developed for the Arizona Board of Regents, and used by the Commission in its projections of enrollment demand, is a sophisticated model incorporating an analysis of the effects of several external conditions. The results obtained from the application of this model are discussed in the following section. For the reasons outlined below, the results may be more appropriate for projecting university enrollment demand than for community colleges. Other approaches to projecting community college enrollment demand are described later in this section.

Headcount and Other Measures of Community College Enrollment. Three measures of community college enrollment are commonly used: Fall Semester Headcount, Annual Unduplicated Headcount, and Annual Full-Time Student Equivalent. Each of these measures quantifies a particular way of reporting enrollment. Each has its legitimate use, and each has its limitations.

- **Fall Semester Headcount Enrollment** is the number of students enrolled on a prescribed census date in the Fall Semester[3]. For community colleges, the census date is the 45th day of the semester. Headcount enrollment is the measure used by the Arizona Enrollment Demand Model. It is likely the most appropriate statistic for measuring university enrollments, where most courses are offered on a fixed semester

[3]Unlike universities, Arizona community colleges show higher enrollments in the Spring Semester than in the Fall Semester.

calendar. But community college courses begin and end at various times during the year; thus a considerable portion of community college enrollment is missed by a fixed-date headcount measure.

- **Annual Unduplicated Headcount Enrollment** is the total number of different students enrolled in the college in an academic year. Because it includes all students, unduplicated headcount better reflects the breadth of service by a community college and the volume and variety of services provided to individual students. Unduplicated headcount includes all persons enrolled in credit courses throughout the academic year including new students in the Spring semester and students enrolled in short-term and open-entry/open-exit classes who were missed by the Fall headcount enrollment count. Community college unduplicated headcount is substantially larger than Fall headcount.
- **Full-Time Student Equivalent (FTSE) Enrollment** is the number of student semester hours taught during the year divided by thirty. FTSE is used to measure instructional effort, faculty staffing, and classroom facilities required to address the instructional load, and is the basis for State Aid funding.

Thus, Fall Headcount is the least descriptive measure of community college enrollment. Annual Unduplicated Headcount is most useful for describing impact on a community and for evaluating the resources required for such activities as student services, counseling, admissions, and registration. FTSE is most useful for evaluating instructional resource and space requirements, and is the measure used for computing State Aid funding.

The Arizona Enrollment Demand Model Developed for the Arizona Board of Regents[4]

A unique feature of the Regents' enrollment growth planning is the development of the Arizona Enrollment Demand Model, often called the Frances Model after its developer. This model recognizes that enrollment demand is the result of complex interactions among a large set of external conditions. The model has eight distinct subsystems that are interactively linked. These include (1) population, (2) college enrollment demand, (3) institutional policies, (4) perceptions, (5) economic, (6) state fiscal, (7) non-resident demand, and (8) high school graduates subsystems. Enrollment demand is treated as the consequence of policy, political, and economic factors as well as population dynamics.

The Arizona Enrollment Demand Model projects community college headcount enrollment based on the Fall semester 45th-day census. It can provide a break-down of these projected enrollment demands by gender, full-time and part-time, and by ethnic categories. It was not designed to address individual institutions, counties, or geographic regions of the state.

The Arizona Enrollment Demand Model projects that there will be a 55,000 student growth in demand for university-level education over the next two decades. Similarly, the model forecasts growth of over 95,000 students who will wish to pursue a community college education. This represents a 62 percent increase in community college enrollment demand from the base of 154,831 headcount students in the Fall Semester, 1990.

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[4]The overview of the Arizona Enrollment Demand model is abstracted from a paper, *Arizona Enrollment Demand Model: Overview of the System*, prepared by Douglas R. Whitney for presentation at the Annual Conference of the Arizona Association for Institutional Research, Phoenix, March 11, 1992.

As will be discussed later, the Task Force has concluded that this model produces a somewhat low projection of enrollment demand.

Considerations That May Cause Community College Enrollment to Increase More Rapidly Than Projected by the Arizona Enrollment Demand Model

Several considerations may cause community college transfer student enrollments to increase more rapidly than projected by the Arizona Enrollment Demand Model: (1) the effect of capping university enrollments, (2) projected increased participation in higher education among Arizona's ethnic minority community, (3) joint program arrangements between community colleges and universities, (4) other joint program arrangements, and (5) the effect of university tuition increases greater than projected in the model.

Capping of University Enrollments. If, as recommended in the Regents' draft enrollment growth plan, the universities cap their enrollment and increase their admission standards, many of those turned away by the universities will seek to enroll in community colleges. The number seeking enrollment in community colleges will depend on the success of the strategies being considered by the Commission. Without knowing the alternatives that will be available, it is impossible to predict the impact on community college enrollment. But the Task Force believes that if university enrollments are merely capped, with no other changes, the individuals who would have attended the universities, but were turned away because of the enrollment cap, will generally seek admission to community colleges.

Increased Participation by Minority Students. Historically, more than seventy percent of all minority students enrolled in Arizona higher education come to community colleges. The number of minority students in community

colleges is expected to increase because the number of minority elementary and high school students is increasing more rapidly than that of non-minority students. Further, efforts to improve retention and high school graduation rates of minority students will result in more minority students seeking higher education. The number of minority community college students will grow because of demographic trends, efforts to improve high school graduation rates, and because community colleges are historically the first choice of minority students.

Effect of University Tuition Increases Greater Than Projected in the Model. The Arizona Enrollment Demand Model included tuition increases and other affordability factors in its analysis. However, if university tuition and fees increase more rapidly than was considered in the Regent's analysis, which the Task Force considers likely, additional students will choose to begin their higher education at community colleges for economic reasons.

State Funding: A Problem That May Limit the Ability of Community Colleges to Respond to Enrollment Demands.

During the past several years, State funding for community colleges has diminished significantly. The task force is concerned that this may adversely affect community college enrollment, especially among minority and less affluent components of society. This ominous shift in funding is graphically shown by a consideration of trends in the three major sources of funds: (1) district tax levy, (2) state aid, and (3) student tuition and fees. For the state as a whole, over the past decade the percentage of funds coming from district tax levies has remained almost constant, moving from 58.5 to 58.6 percent between 1981-82 and 1991-92. During the same period, the percentage of funds coming

from state aid diminished from 30.3 to 25.3 percent and student tuition and fees picked up the difference, moving from 11.1 to 16.1 percent of the total.

A recent report in a national publication[5] lists Arizona 42nd among the 43 states studied with respect to percentage of state funding for community colleges. The same study listed Arizona as 7th among the states with respect to percentage of local funding for community colleges.

Many assume that community colleges can simply raise their local tax levies if there is a shortfall in state aid. This is not so. Community college districts serving 83 percent of community college FTSE are presently at their taxing limits.[6] When the State fails to provide adequate funding for the expense of community college programs, the only choices most district governing boards have are to increase student fees, reduce services, or both. Either choice makes community college programs less accessible.

Adequate state capital and operating funding is essential if community colleges are to expand their facilities and programs to address the expected increase in enrollment demand.

The Nature of Community College Students

Community college students are characterized by diversity. While some students fit the common model of a college student as unemployed and attending college full-time, most do not. There are many types of community college students, and their diversity makes it more difficult to predict

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[5]Garrett, Rick L. (1993) A Profile of State Community College System Characteristics and Their Relationship to Degrees of Centralization, *Community College Review, 20 (5), 6-14.*

[6]Coconino, Graham, Maricopa, Mohave, and Pima County Community College Districts are at or above 99.5% of their taxing limits.

enrollments in community college enrollments than in universities. The following are some common enrollment variations:

- **Reverse Transfer.** Many students transfer from universities and four-year colleges to community colleges. Some will subsequently return to the university, while others will complete their education at the community college.
- **Dually Enrolled Students.** It is not uncommon for students to be concurrently enrolled in a university and at one or more community colleges in communities in which universities are located.
- **Students in Open-Entry/Open-Exit Courses.** Open entry/open exit courses start and end throughout the year. The time students spend in such classes depends upon the time they need to get the competencies defined in the course objectives. These courses are primarily designed for students obtaining and upgrading employment skills.
- **Year-Round Students.** University students often choose to take classes at a community college during the summer term. This includes students returning home for the summer who enroll at their home community college, and university students remaining in the university community who take summer courses at the local community college. Further, many community college students pursue their education as part-time students, but on a year-round schedule.
- **Reentry Students.** An increasing proportion of community college students have been away from school for several years when they enroll at a community college. These reentry students may have been homemakers, or they may be individuals who have a need to prepare for a different career path, or they may just have arrived at a realization that

more education is essential if they are to achieve their life goals. The reasons are as varied as the individuals involved, but the numbers are large and continually increasing.

- **Participants in Nontraditional Programs.** A large and increasing number of community college students are pursuing their education through nontraditional programs. These include television courses and other electronic and print-based learning opportunities that enable individuals to pursue education despite time and place limitations that prohibit attendance in traditional college programs.
- **Persistence of Part-Time Students.** There are many reasons why students attend community colleges part-time. Some take courses to upgrade job skills while working full-time. Others simply find part-time attendance to better fit their life situation. But the Task Force notes that many part-time students now attend community colleges for longer periods of time. The Task Force believes that many of these students who are persisting for long periods would attend full-time if their economic situation allowed them to do so. The Task Force concludes that the cost of attending community colleges is becoming an increasing deterrent to full-time attendance.

A Recent Study of Arizona Community College Transfer Students

A recent study[7] compared the background and success of 1990 baccalaureate graduates of four Arizona universities (Grand Canyon University, Arizona State University, Northern Arizona University, and the University of

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[7]Bogart, Quentin J., and Price, M. J. (1993). *Student Success: A Comparative Study of Arizona Community College Transfer, Four-Year College Transfer, and Native University Students.* Phoenix, Arizona: State Board of Directors for Community Colleges of Arizona.

Arizona) who (1) transferred to the university from an Arizona community college, (2) transferred to the university from a four-year college, and (3) attended the university for their entire course of study (native students). The following key findings are pertinent to this report:

- **Student Success.** "The Spring, 1990, C. C. Transfer baccalaureate graduates outperformed Native university graduates on final semester GPA. C. C. Transfers had significantly higher scores with a mean of 3.31, compared to 3.23 for Natives."[8]
- **Student Age.** The community college transfer group's median age was 26.0, the four-year college transfer group's median age was 24.1, and the native university group's median age was 22.9 years.[9]
- **Student Ethnicity.** The community college transfer students were 83% Anglo, 8.5% Hispanic, 2.8% Asian, 1.1% Native American, and 1.1% Black. The native university students were 87% Anglo, 5.4% Hispanic, 4.8% Asian, 1.5% Native American, and 1.2% Black.[10]
- **Family Income.** "Total 1989 family income was significantly different for the C. C. Transfer and Native university student groups with 43% of the C. C. Transfers reporting family incomes under $20,000 versus only 27% of the Native university group. Thirty-nine per cent (39%) of the Native university student group reported family incomes of $50,000 or

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[8]Bogart, Quentin J., and Price, M. J. (1993). p. 43.

[9]Bogart, Quentin J., and Price, M. J. (1993). pp. 8-9.

[10]Bogart, Quentin J., and Price, M. J. (1993). pp. 9-10.

more, compared to only 15% of the C. C. Transfer group with family incomes in this range."[11]

- **Family Education.** "Forty-two per cent (42%) of the C. C. Transfer participant group reported, 'I was the first' in the family to earn a baccalaureate degree. Twenty-six per cent (26%) of the Native university student group indicated a similar circumstance. However, an even higher percentage of the Native university participant group, 34%, reported that 'Both parents have degrees'."[12]

Thus, the 1990 baccalaureate graduates who had transferred from community colleges outperformed the native students, were older, and came from much less affluent families that had less of a tradition of educational attainment. A slightly greater percentage of the community college students were from minority groups. These findings further underscore the importance of community colleges in providing social and economic mobility for less affluent citizens of Arizona.

Enrollment Projections Using Statistical Methods

The statistical subgroup of the Task Force has used two statistical methods to prepare alternative enrollment projections to compare with those made using the Frances model, which was discussed previously. These alternative projections, as well as more detailed projections by program type, age, gender, and ethnicity, are detailed in Appendix A. As was mentioned earlier, the Frances model projected Arizona community colleges to have an

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[11]Bogart, Quentin J., and Price, M. J. (1993). p 50.

[12]Bogart, Quentin J., and Price, M. J. (1993). p 58.

enrollment demand of 249,891 in 2010. This is an increase of 62 percent between 1990 and 2010.

The first alternative method employs a projection of enrollment as a percentage of the population. This method produces a projected headcount enrollment of 266,145 by 2010, or 16,254 more than in the Frances model projections, or an increase of 72 percent between 1990 and 2010.

The second alternative method is based on a forward projection of the average annual rate of growth from 1981 to 1991. This method produces an even larger projected headcount enrollment, suggesting that the colleges could be enrolling as many as 297,477 students by 2010. This is 47,586 more than projected by the Frances model and an increase of 92 percent from the 1990 base enrollment.

Task Force Estimate of Most Likely Community College Enrollments

The Task Force has examined the enrollment projections made using the Frances model and found them to be on the conservative side of a range of reasonable estimates. The Frances model projects that enrollment demand will have increased 62 percent by 2010. The alternative models project enrollment demand increases of 72 percent (Population Model) and 92 percent (Rate of Growth Model).

The Task Force projects that community college enrollment demand will increase between 62 and 90 percent between 1990 and 2010. If the universities can accommodate their projected enrollment increases, the most likely community college projection is an enrollment gain of between 62 and 75 percent. If the universities are not successful in meeting their growth requirements, the community college enrollment projections must be increased

accordingly. Regardless of the enrollment projection methodology employed, the demand for community college enrollments will have increased tremendously by 2010.

To understand the magnitude of these projections, one may note that the average community college in the state has a fall headcount of approximately 8,000 students. The Frances Model projects the need for the equivalent of an additional eleven average-sized community colleges by 2010. The Task Force's estimate of most likely enrollment demand increase can be roughly visualized as equivalent to an increase of between eleven to fourteen additional average-sized community colleges.

III. STRATEGIES TO ACCOMMODATE ANTICIPATED ENROLLMENT GROWTH

Strategies to accommodate the large increase in enrollment must include effective planning for additional facilities, equipment, and staffing as well as continuing refinement of programs and extensive reevaluation of operating priorities.

Strategic Planning for Facilities, Equipment, and Staffing.

Significant additional resources must be provided to community colleges if they are to succeed in serving large numbers of additional students. While the increased population that is a principal factor in driving the projected enrollment growth will bring with it increased revenues, it also will bring with it an increased demand for all types of governmental services. There is no reasonable expectation that resources can be provided to community colleges on the scale that would be required to replicate sixty to ninety percent of the present physical plant, equipment, and staff in the coming seventeen years while maintaining and modernizing the present resources. Community colleges must develop innovative new ways to deliver and fund community college services.

Community college districts should develop and articulate specific strategic plans addressing facilities, equipment, and staffing required to accommodate anticipated enrollment growth. The State Board should integrate the strategic plans developed by the districts, articulate the needs of the

colleges, and develop an effective process to get the resources necessary to carry out the plans.

Collaborative Efforts Among Institutions

Arizona is fortunate to have several successful and productive collaborative efforts among its educational institutions. These efforts have brought a rich variety of higher education to remote portions of the state at a reasonable cost, they have saved expenses by sharing resources and facilities, and they have simplified the transition of students from one level or type of education to another. The Task Force encourages the continuation and expansion of these collaborative efforts as a cost-effective way to serve an increased number of students.

Joint Program Arrangements Between Community Colleges and Universities. The Task Force considers the 2 + 2 model involving a high degree of cooperation and interaction between Arizona Western College, in Yuma, and Northern Arizona University to be an extremely viable arrangement. Under this model, students can begin their postsecondary education at Arizona Western College, continue their work at NAU-Yuma, still on the same campus, and receive a bachelors degree in a variety of curricula. Local residents can then pursue graduate work in selected fields on the same campus. Many of the upper-division and graduate courses are delivered via microwave two-way interactive television from NAU in Flagstaff. The same type of interactive television is in place between NAU and Mohave Community College in Kingman and will soon be in place with Northland Pioneer College in Holbrook. The AWC/NAU-Yuma 2 + 2 delivery systems, and the similar systems in other regions, have allowed significant numbers of Hispanic and

Native American students to earn baccalaureate and graduate degrees in their home town. This is an educational goal previously viewed as unattainable by many rural Arizona residents.

Another type of 2 + 2 model is provided by the arrangements being developed between the University of Arizona Sierra Vista Site and the Sierra Vista Campus of Cochise Community College. In this instance, the two institutions are located on adjacent parcels of land and share several resources.

In addition, each community college district reports one or more 2 + 2 program arrangements with one or more of the State's public or private universities. These are cited only to illustrate that there are other community college -- university collaborative efforts, mostly focused on specific program areas.

While these arrangements have limitations, they do bring upper division and graduate education to those whose jobs, home responsibilities, or financial limitations do not make relocating or commuting to a university campus possible. The Task Force believes that the presence of such arrangements makes the community college campus more attractive to potential students.

Other Joint Program Arrangements. Tech-Prep Programs are cooperative arrangements between community colleges and secondary schools in which the curricula of certain occupational programs are coordinated. The students begin a Tech-Prep program in the Junior year in high school and complete the program with an Associate Degree at the community college.

Bridge Programs are designed to support students in transition from one educational level to another by giving them exposure, information, contacts, and instruction through concurrent enrollment. These programs are not yet

widespread in Arizona. As their use spreads, access will be provided to students who previously would not have sought a higher education.

Confronting the Challenge of Growth

Besides the programmatic strategies discussed above, there are some basic changes in the operation of community colleges, and in certain basic assumptions regarding their mission, that should be considered if Arizona community colleges are to rise to the challenge of enrollment growth with limited resources. Among these strategies are:

Sharpen the Focus of the Community College Mission. Arizona community colleges will be unable to provide the needed education and training for all students in the present manner. The use of enrollment management strategies will have to expand from a few high-demand programs, now, to more and more programs in the future. To contain and moderate this trend, the component organizations of the community college system should collaborate in a review and evaluation of the elements of the community college mission to decide their relative priority and current applicability. Some aspects of the mission, while desirable, may need to become self-supporting.

The Task Force suggests that transfer education, vocational education, developmental education, student counseling and advisement, and workforce training and retraining may be the more critical elements of the mission. Other programs and services, including lifelong learning, community services, and some aspects of continuing education, may be less critical. Because of the large differences among the needs of different regions of the state, some regional variation in mission may be appropriate.

Complete a Review of Course Offerings. Courses that are community-based and of individual interest, but are not a part of an academic degree or certificate program or a part of a structured employment training program, are an important part of the community college mission but may not be able to be supported by current funding. These courses may have to become self-supporting.

Create New Paradigm For Community College Programs. Responsiveness to customers must remain paramount. Community colleges will need to consider a variety of strategies to be prepared to meet the projected enrollment demands. These strategies may include a wider use of modularized courses, intensive courses, weekend courses, courses offered to match worker's shifts, courses with customized content, more extensive use of course challenge examinations, telecourses, and other "non-traditional" instruction.

Coordinate With High Schools. Coordination with high schools is essential to help in the improvement of basic skills of students to enable more of them to enter transfer and occupational programs immediately upon graduation. In addition, programs must be redesigned to reflect workplace literacy needs by offering workbased learning and other activities reflecting applied academics in reading, writing, mathematics, and technology.

Emphasize Program Completion. While many students who are taking community college courses for personal enrichment or job upgrading do not need to complete a formal program of instruction, students who are preparing for initial employment or are pursuing a baccalaureate degree should be encouraged to do so. Additional emphasis should be placed on the completion of programs leading to degrees and certificates. To provide a greater incentive to complete a course of study, both the colleges and the State Board should

attempt to enhance the value of an associate degree as a credential for transfer and employment.

Improve University Transfer Advising. Provide a more structured approach to advising students who plan to transfer to a university. Develop advising systems that provide students with improved career and program planning information. Require that advisors receive adequate training and have current information to help them with their advising. The universities and the community colleges should seek funding to refine and extend the on-line electronic course equivalency guide, presently used by Pima Community College and the University of Arizona, to include all community colleges and all universities.

Facilitate Transfer Among Community Colleges. Community college districts should articulate their curriculums so that students can transfer between community college districts without losing credit or having to duplicate courses. Community colleges should develop common course numbers and essential competencies for general education and transfer courses. The course equivalency guide should be expanded so that community colleges can easily evaluate credits earned at another community college.

Assess Instructional Productivity. Programs should be established or discontinued based on enrollment demand, economic trends, and cost effectiveness. Colleges should collaborate with industry on training and continuing education, limiting occupational programs to those with high enrollment and employment opportunities. Programs that fail to maintain adequate levels of enrollment, completion, and placement rates should be discontinued.

Develop Student Information System. The newly-initiated Statewide Student Information System should be fully implemented to provide a wider scope of data than has been available in the past. This data will be helpful for institutional management and is essential for demonstrating community college accountability on a statewide basis.

Evaluate the Academic Calendar. Year-round delivery of instruction and year-round use of facilities could materially increase the instructional capacity of present facilities.

Financial Support

New investments from all partners -- taxpayers, employers, and students -- will be necessary to adequately finance Arizona's community colleges in the coming years.

Financial Aid. The State should provide financial aid funding to offset increased tuition costs for needy students. Additional financial aid packages should be developed for students through business and corporate support, government job-training programs, tuition assistance programs, foundations, and endowments.

Alternative Funding Models. Consideration should be given to developing alternatives to the present model of enrollment-based funding. One such alternative model involves "contracting for service" under which some portion of the funding depends on student achievement. Some community colleges currently maintain contracts with businesses, industries, and government agencies for specialized training and skill development based on this model.

Other alternatives, involving direct financial support, training facilities, and expert trainers from the industry served by a particular occupational program, also may need to be explored. Some aspects of this latter model are now widely used in support of nursing and allied health programs. The use of this model may need to be expanded into other fields if community colleges are to remain in the forefront of technology.

Competitive Grant Programs. There should be additional funding for State competitive grant programs linking community colleges with business partners in providing customized job training and human resource development.

IV. RECOMMENDATIONS

Policy Issues Addressed to the Arizona Board of Regents through the Commission on Public Higher Education Enrollment Growth Planning[13]

No matter what strategies are followed at the university level, community colleges will be faced with an increased proportion of the lower division undergraduate students who ultimately plan to receive a baccalaureate degree. Arizona is fortunate that basic policies and procedures for articulating transfer of students from community colleges to the universities are in place and considerable progress has been made in this area in recent years. But, these policies and procedures will need to be continued and refined. Articulation should be predominantly addressed on a statewide basis, as well as through appropriate bilateral agreements, if the citizens of the state are to be served well.

The Task Force recommends that the Arizona Board of Regents establish a policy on community college transfer students that contains the following essential elements:

- As a matter of public policy, space must be made to accept into state supported baccalaureate programs those students who have attended Arizona community colleges for their lower division work, and have done well. Students who have graduated from a transfer curriculum

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[13]These recommendations were included in the *Preliminary Report of the Task Force on Community College Enrollment Growth Planning* dated February 17, 1993.

at an Arizona Community College should be guaranteed admission to an Arizona Public University campus as an upper-division student.

- The current statewide articulation process needs to be extended to assure that credits acquired by students completing an Arizona Community College transfer program will apply toward a baccalaureate degree and work done at the community college will not have to be repeated at the university.
- Admission policies should ensure that community college transfer students receive equitable treatment with native university students in competing for admission to majors at the university.

Recommendations Addressed to the Governor and State Legislature: State Aid for Community College Facilities and Operations[14]

Expansion of community college participation in the education of students ultimately seeking baccalaureate degrees, and in the preparation of students gaining or refining occupational skills, are cost-effective strategies for the State. They must not, however, be considered to be cost-free alternatives.

In recent years the State's participation in the expenses of community college facilities and operations has been deteriorating when considered as a percentage of total cost. This erosion of State participation is placing an excessive load on the local tax base and on the students. A recent report in a national publication lists Arizona 42nd among the 43 states studied with respect to percentage of state funding for community colleges. The same study listed

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[14] An earlier version of this recommendation was included in the *Preliminary Report of the Task Force on Community College Enrollment Growth Planning* dated February 17, 1993.

Arizona as 7th among the states with respect to percentage of local funding for community colleges.

Community College Districts serving 83 percent of community college students (FTSE) are presently at their taxing limits. When the State fails to provide adequate funding for the expense of community college programs, the only choices most District Governing Boards have are to increase student fees, reduce services, or both. Student tuition and fees now exceed State aid in the two urban districts.

The Task Force concludes that a systematic increase in State funding for both operations and capital expansion is justified and is required if community colleges are to be able to accommodate the enrollment increases projected by both the Commission and the Task Force. The Task Force recommends that State funding for Arizona Community Colleges be increased to meet this challenge.

Recommendations Addressed to the State Board of Directors for Community Colleges of Arizona.

Implementing the strategies suggested in this report will require state-level advocacy, leadership, and coordination. The State Board has an opportunity to show how state-level leadership that is sensitive to both the varying needs of the districts and the need for a clear voice speaking for community colleges at the state level can facilitate cooperation within the system of community colleges. The State Board also must provide effective advocacy for community colleges with the public, the executive, the legislature, and with other educational systems. Community colleges cannot adequately address enrollment growth in isolation. The State Board will need to

collaborate with the Arizona Board of Regents and the State Board of Education in the development of coordinated plans for Arizona. State Board leadership will be critical to the future success of Arizona's community colleges.

Recommendations Addressed to District Governing Boards and Colleges.

District Governing Boards and the Colleges they govern clearly have the most difficult tasks suggested in this report. They are being called on to be innovative and, simultaneously, to coordinate decisions that they have previously made unilaterally. To serve their constituencies better, they will need to be aggressive in seeking partnerships and cooperative arrangements. They will ultimately have to carry out the strategies, many of which require significant changes in practices that have become well established in many localities. They will have to develop and interpret a new understanding of the mission of Arizona's community colleges to their publics. These are, indeed, difficult tasks. Yet, if Arizona's community colleges are to serve Arizona in the best fashion, these tasks must be undertaken and successfully completed.

APPENDIX A

Final Report
from the Statistics Subgroup

of the
Task Force on Community College Enrollment Growth Planning

rev. July 26, 1993

State Board of Directors for Community Colleges of Arizona
3225 North Central Avenue, Suite 1220, Phoenix, Arizona 85012

Final Report from the Statistical Subgroup of the
Task Force on Community College Enrollment Growth
prepared by David C. Rubí
rev. July 26, 1993

The statistical subgroup of the Task Force on Community College Enrollment Growth was assigned the following items for review. What follows is the subgroup's findings or recommendations on these items.

- **Review the current Arizona Board of Regents Frances Model projections**

This review was conducted by the statistical subgroup, summarized in a draft report and discussed by the task force during its meeting on January 29, 1993. The subgroup had two main areas of discussion as regards the Frances model, and they are summarized below:

Review of Frances Model's Projections for Community College Enrollment in 2010:

Data utilized by the subgroup (which will be discussed later in this report) indicate that the projections for enrollment demand made in the Frances model are on the conservative side. For example: the model projects that the Arizona community colleges will have a Fall Enrollment of 249,891 in 2010[1].

However, two other linear projections prepared by State Board staff for the subgroup suggest that community college enrollment will actually be higher. The first projection, which looks at enrollment as a percentage of the population, suggests that the Arizona community colleges could have 266,145 in headcount enrollments by 2010, or 16,254 more than in the Frances model projection (see Appendix A).

The second one, based on a projection forward of the average annual rate of growth from 1981 to 1991, indicates that the colleges could enroll 297,477 headcount, or 47,586 more than the Frances model suggests (see Appendix B).

To put both of these differences into perspective, one should recall that Arizona's largest community college, Mesa, enrolled 20,503 students in Fall 1991. So a difference of 16,254 to 47,586 students in headcount is the more or less the equivalent of saying that the state would need the facilities and staff of another one to 2.3 large community colleges.

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[1] Original data from the Frances Report stated that community college enrollment would be 245,000 student in 2010. See: Frances, Carol and Marshall Van Alstyne. "Arizona Demand for Higher Education 1990 - 2010: Future Scenarios." Phoenix: Arizona Board of Regents. October 5, 1991. p. 4. The revised Frances model projection used here is a later revision provided by the Arizona Board of Regents.

This brings the discussion to another point: regardless of the difference in numbers, all of them point to one important fact: by 2010 community college enrollment will have grown by a tremendous amount. If we take the Frances model's projection to be the conservative estimate of growth, then by 2010 our community colleges will need to accommodate more than 95,000 students by headcount than they did in Fall, 1991. This is an increase of 61.4% over the Fall, 1991 enrollment. Likewise, using the most progressive estimate of growth, our colleges would have to serve 137,677 more students than in Fall, 1991, which is an increase of 86.2%.

When one considers that the statewide average college size by headcount enrollment in Fall 1991 was about 8,400 students, we can understand the enormity of the challenge that is facing the Arizona community colleges as they plan to deal with this growth. In very simple terms, the community colleges will need to provide additional services equivalent to what are currently provided by 11 to 16 average size community colleges. Since the cost of building 10 to 16 new campuses is probably too prohibitive, then we must develop a variety of strategies to accommodate this growth.

The Frances model and its Capacity for Projecting Community College Growth:

The Frances model developed by the Arizona Board of Regents is a highly sophisticated and well-thought-out instrument, especially in its ability to project a variety of demographic trends. However, as is to be expected, it is oriented towards university needs and uses, and for that reason does not have a fully developed component that takes into account important factors that influence community college enrollment growth. For instance:

- It bases its projections on Fall headcount enrollment, which probably is entirely appropriate for university modeling and planning, but is not necessarily the best measure of community college enrollment[2].

- It does not fully model the effect of changes in university policy, such as tuition increases, more restrictive entrance requirements, etc., on community college enrollment.

- Community colleges do not have restrictive admissions requirements. Essentially any adult who wishes to attend can gain admission to our colleges. This is quite different from the university sector, and because of this, community colleges serve a much larger and more diverse portion of the population than do the universities. For this reason, community colleges are more sensitive to shifts in population and economic trends.

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[2] See: Puyear, Donald E. "Preliminary Report: Task Force on Community College Enrollment Growth Planning." Phoenix: State Board of Directors for Community College of Arizona. February 17, 1993. pp. 3-4.

- To appropriately serve this larger and more diverse population, community colleges have a wider variety of programs than do universities. The main program areas have traditionally been academic (university transfer) and vocational education, but community colleges also offer training for business and industry and career enhancement opportunities. Furthermore, the community colleges do all this at a lower cost to students.

- Community college income sources are more diversified than the universities. They have three major sources of funds: tuition and fees, state aid, and local taxes. However, because of this situation, we are more sensitive to a broader range of financial fluxes than are the universities. For instance, a drop in property values, which is something that happens during a recession, is a drop in local tax revenues. A drop in sales taxes puts pressure on the legislature to cut or slow down spending. This ultimately forces a rise in tuition, which can force a drop or slow down in enrollments.

The subgroup feels that the above items are important to consider when making any kind of detailed projection model of community college enrollments.

o **Review current enrollment projections prepared by the districts**

The community college districts provided enrollment projections to the task force. The projections use various methodologies and timelines, and are summarized as follows (arrangement is chronological by year of projection):

- Mohave Community College projects Full-time Student Equivalency enrollment (FTSE) to be 2,350 in 1993-94. (In 1991-92, Mohave had 1,960 FTSE. This indicates a 19.9% increase from 1991-92 to 1993-94.)

- Eastern Arizona College projects FTSE to be 2,900 in FY1994. (In 1991-92, Eastern had 2,436 FTSE. This indicates a 19.0% increase from 1991-92 to FY1994.)

- Central Arizona College projects a projected FTSE of 3,374 in 1995-96. (In 1991, Central had 3,053 FTSE. This indicates a 10.5% increase from 1991-92 to 1995-96.)

- Pima Community College projects FTSE to be a projected 18,800 in 1996. (In 1991-92, Pima had 15,051 FTSE. This indicates a 24.9% increase from 1991-92 to 1996.)

- Maricopa County Community College District projects FTSE in 2005 to range from a low of 61,000 to a high of 78,000. (In 1991-92, Maricopa had 44,656 FTSE. The indicates a 36.6% to 74.7% increase from 1991-92 to 2005.)

- Arizona Western College, which projects headcount of 13,294 and FTSE of 5,162 in 2010. (In 1991-92, Arizona Western had 5,316 Fall headcount and 2,585 FTSE. This indicates a 150.1% headcount increase and a 99.7% FTSE increase from 1991-92 to 2010.)

- Cochise College projects headcount of 6,800 to 7,000 students in 2010. (In 1991, Cochise had 4,829 Fall headcount. This indicates a 40.8% to 45.0% increase in headcount from 1991 to 2010.)

- Coconino Community College projects FTSE of 4,210 in 2010. (In 1991, Coconino had 491 FTSE. This projection shows a large increase due to its recent establishment from 1991-92 to 2010.)

Regardless of the methodology or timeline used by each district, all the projections point toward one thing: that enrollment will continue to grow over the next several years in the Arizona community college system.

o **Prepare detailed enrollment growth estimates that show:**

- Enrollment demand for the state as a whole

As discussed earlier, any method used to project enrollment growth shows substantial growth for community colleges. What all methods share is the basic assumption that the state population will continue to grow at a reasonably rapid rate and that this will drive the enrollment figures upward for higher education. Of course, the Frances model takes many other factors into consideration. However, the subgroup decided to use two more traditional approaches toward projecting community college enrollment to 2010. Basic projections for the state and for each district have been developed and shared with the task force. Three different linear methods were used to make basic projections:

1) This method uses the two commonly used enrollment measures, 45th-day headcount enrollments and fiscal year full-time student equivalent measure, and looks at them as a percentage of total state population. Using census figures for 1990 statewide population and estimates and projections from the Arizona Department of Economic Security, we looked at these percentages for the years 1981 to 1991 inclusive. From the data so derived, we next performed a linear regression on the percentages, using the years as the x-axis data. The full results are in Appendix A of this report.

In short, in 1980, 4.1% of the state population was enrolled as headcount in our community colleges, and 1.9% as FTSE. In 1985, the percentage of population enrolled reach a low point, possibly as a delayed effect of the 1982 recession and more restrictive federal financial aid policy. The headcount percentage at that time was 3.7% of estimated population, and FTSE was at 1.6%. However, it has been steadily growing since. In 1991, 4.2% of the state population was enrolled as headcount, and 2.1% as FTSE. (see Appendix A)

The regression line drawn from these figures indicates that by 2000, 4.4% of our population will be in community colleges as headcount, by 2005, it will be 4.6%, and

by 2010, it will be 4.7%. The FTSE percentages corresponding to those years will be: 2.1% (2000), 2.2% (2005), and 2.3% (2010).

This translates into a projected 266,145 headcount and 128,727 FTSE in 2010.

2) The second method used takes an average of the annual rate of change in headcount and FTSE from 1981 to 1990 and projects this average forward, compounded annually, until 2010. The annual average headcount rate of growth from 1981 to 1991 was 3.3% for headcount and 3.9% for FTSE. Essentially, this means that if the state community colleges continue at the same rate of enrollment growth that they showed from 1981 to 1991, they will be serving 297,477 headcount and 160,338 FTSE. Of course, this is provided that the colleges have the capacity to be able to serve these people.

- Enrollment demand for each district

The subgroup recommended not developing district data at this time, as this is an issue that we are studying in general, statewide terms. We are concerned at this time with the macrocosm, not the microcosm.

o Enrollment by program type

- Part-time and Full-time Enrollment

In Fall, 1981, 85,480 (76.1% of total) students were registered as part-time, 26,828 (23.9%) as full-time. In Fall, 1991, the part-time enrollment was 125,744 (78.7%), full-time 34,056 (21.3%). In other words, part-time students have become a slightly larger percentage of our student body over the past several years. This could be caused by more working adults enrolling and also with the gradual increases in tuition over the same period of time, but more detailed study must be done to verify this. However, if this is the case, and if tuitions continue to increase over the next several years, then we will see fewer full-time students at our community colleges by 2010.

- Vocational and Academic Trends

In Fall 1981, the community colleges reported 258,067 occupational credit hours of enrollment (33.2% of total credit hours reported), and 518,415 academic credit hours (66.8%) for a total of 776,482 credit hours. In Fall, 1991, the colleges reported 261,094.7 occupational credit hours (26.4%) and 729,437.5 academic credit hours (73.6%) for a total of 990,532.2.

This is important because if the universities implement policies that decrease services to their clientele, then that clientele will look for educational services elsewhere, particularly to the community colleges. Likewise, shifts in personal income, and like economic

pressures could keep potential university students from university services, which will push these students to the community colleges. Since these students are potential university students, they would more likely take transferable academic courses at the community colleges than non-transferable vocational courses.

- **Enrollment by age**

in Fall 1991, 88,683 students were less than 30 years of age (55.5% of enrollment), 68,934 were 30-years or older (43.1%), and 2,183 were undeclared as to age (1.4%). However, a trend in the 18-year old population may indicate a potential for increased enrollment demand in years to come from the younger end of the population. This observation is based on a recent report in *Higher Education and National Affairs, ACE*:

> • ...The Bureau of the Census estimates that the size of the 18-year-old population bottomed out in 1992 at 3.3 million, down from a "baby boomer" high of 4.3 million in 1979.
> • The Census projects that the number of 18-year-olds will increase to 3.5 million this year, but return to 3.3 million in 1994. After that, the size of this age cohort is expected to increase steadily to 3.9 million at the end of the century.
> • The proportion of 18-year-olds who completed high school hovered in the range of 73 percent to 75 percent during most of the 1980s. In 1989 and 1990, the share dropped to 72 percent, but throughout the 1990s, it is expected to remain in the mid-70 percent range[3]. (See also Appendix D.)

If this national trend holds true for Arizona, then the annual increase in the number of 18-year-olds, coupled with a slightly larger high school completion rate, will probably result in a proportionately higher demand for community college services. Furthermore, the growth in this population has social implications, particularly as it pertains to the minority populations, as will be discussed later in this report.

- **Enrollment by gender**

In Fall 1981, there were 49,334 (43.9%) males registered in the Arizona community colleges and 60,609 females (53.9%). In Fall, 1991, these numbers were 67,110 males (42.0%), and 90,600 females (56.7%). (percentages do not add up to 100% because there is an "undeclared" category for gender in the State Board report).

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[3] "Facts in Brief: Number of High School Graduates May Rise in the 1990s." *Higher Education and National Affairs, ACE*. April 19, 1993. p. 3.

The increase in female enrollment is surprising when one considers the following: in 1980, females accounted for 50.8% of the state population. In 1990, this percentage was 50.6% of the state population.

Various factors could be influencing this, such as the well-known fact that women bring home less income than men (lower income is also a factor shared by minorities). This factor will make community colleges more attractive because of their apparent cost effectiveness. Whatever the factor, it is obvious that we have had growth in the representation of females on our campuses and that it is being pushed by factors other than population growth.

- **Enrollment by ethnicity**

This is one of the more complicated areas in which to predict enrollment demand. When one reviews educational attainment levels by ethnic or race group, one can see an obvious enrollment need, or rather, need for these groups to have access to community college education.

Income levels are an important factor in determining whether minorities can participate in college. But there are also other factors that also impact on their participation: (1) lower educational attainment levels (which suggest a high level of underpreparedness for college and work); (2) growth in percentage of population; (3) youth of population; (4) access to non-loan financial aid.

According to the 1990 Census for Arizona, for persons aged 25 or more, 48.2% of Hispanics did not have a high school diploma or G.E.D. This compares to 47.9% for Native Americans, 25.3% for African Americans, 17.8% for Asian Americans, and 15.0% for non-Hispanic Whites. If level of educational attainment is any indicator of a group's educational need, then it is obvious that minority groups could make use of accessible, affordable, adult education as is found in community colleges.

Secondly, the minority groups, overall, have a faster rate of growth in Arizona than do non-minorities. In 1990, there were 52.2% more minorities than in 1980, while there were 29.1% non-minority. To understand what these numbers mean, we should consider that in 1980, 75.0% of the population was non-Hispanic White and 25.0% minority. In 1990, the percentages were 71.8% and 28.2% respectively. In other words, minorities constituted a significantly larger portion of the population in 1990 than in 1980.

However, the change is taking place among the young is more significant. In 1990, as mentioned above, the minorities were 28.2% of the population, non-minorities, 71.8%. However, minorities made up 36.4% of persons aged 16 to 20 years, and 41.3% of those less than one-year to five-years old in 1990. Conversely, those 65 years or older were only 11.3% minority.

Based on the numbers above, it is obvious that in 2010 the traditional college-aged pool of potential students will be far more minority than it even is now. However, the Frances model suggests that college-going rates for minorities will not be greatly improved. If this is the case, it means that community colleges (as well as universities) will still be underserving that segment of the population. Another generation of minorities will pass without higher education serving their needs at the same level as for non-minorities (for all items above, see Appendix C)

Many of the factors that negatively influence minorities' access and achievement in higher education are not in the community colleges' direct control. However, because of their traditional openness and community orientation, community colleges can play a positive and important role in improving minorities' educational and job skills. So, when planning for enrollment growth, we must also develop strategies that will not eliminate access or create new obstacles. Careful consideration must be taken to see how all strategies for growth impact on all levels of society.

This concludes the statistical subgroup's report to the Task Force on Community College Enrollment Growth.

Original prepared on May 10, 1993
by David C. Rubí.

This is a technical revision of the original
prepared by David C. Rubí on July 26, 1993.

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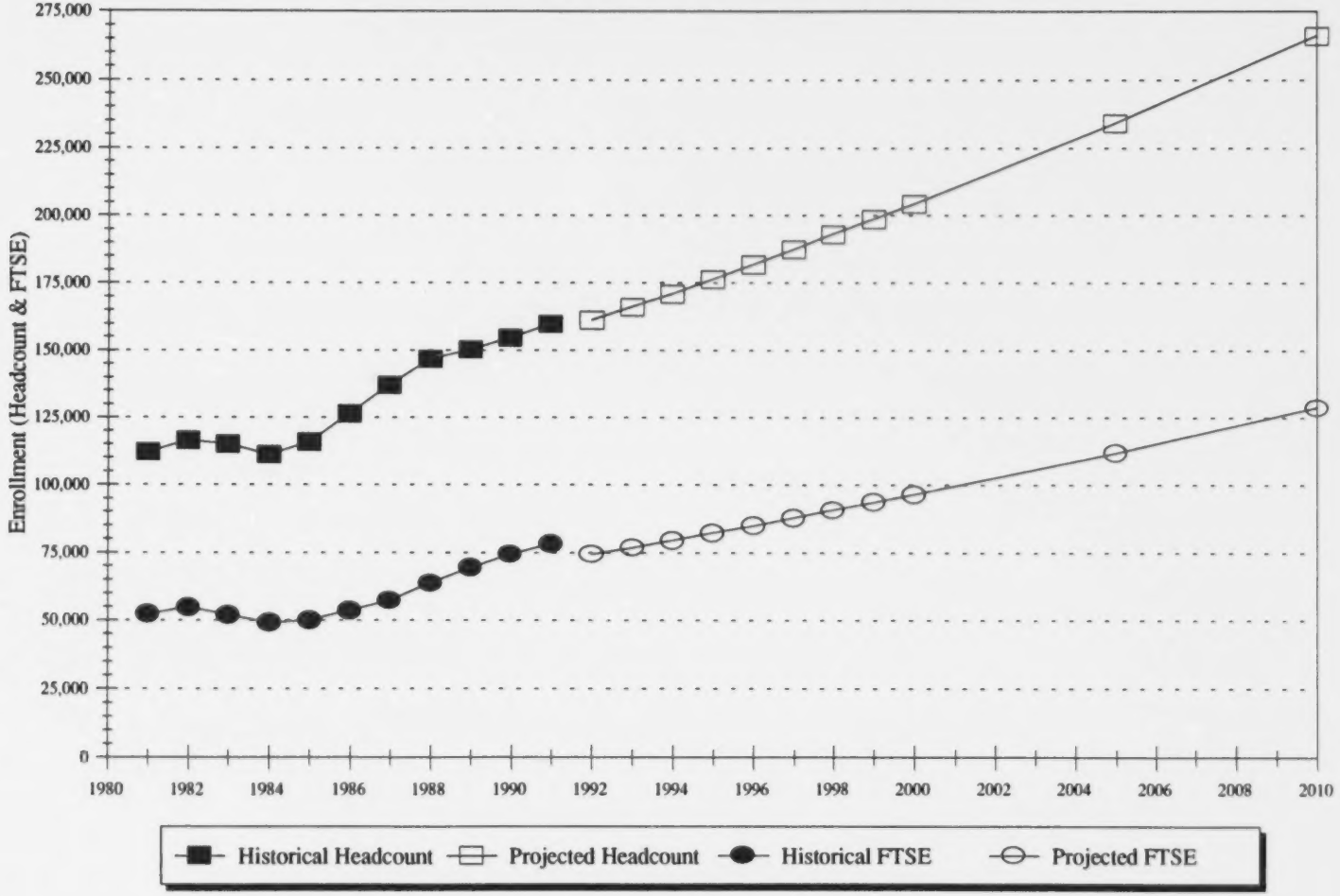
	Projections of Headcount & FTSE Based on Enrollment as a % of Population: Arizona Community Colleges							
	YEAR	Population	Fall Headcount	Headcount as % of Population	Academic Year FTSE	FTSE as % of Population	**Regression** Hdcnt as % of Pop.	**Regression** FTSE as % of Pop.
	1981	2,767,500	112,311	4.1%	52,347	1.9%	3.9%	1.7%
	1982	2,846,400	116,629	4.1%	54,748	1.9%	3.9%	1.7%
H	1983	2,898,400	115,089	4.0%	52,070	1.8%	3.9%	1.8%
I	1984	3,032,400	111,356	3.7%	49,119	1.6%	3.9%	1.8%
S	**1985**	**3,162,900**	**115,900**	**3.7%**	**50,101**	**1.6%**	4.0%	1.8%
T	1986	3,291,600	126,356	3.8%	53,650	1.6%	4.0%	1.8%
O	1987	3,459,900	137,168	4.0%	57,281	1.7%	4.0%	1.8%
R	1988	3,538,400	146,844	4.2%	63,659	1.8%	4.1%	1.8%
Y	1989	3,617,300	150,254	4.2%	69,384	1.9%	4.1%	1.9%
	1990	**3,665,228**	**154,831**	**4.2%**	**74,331**	**2.0%**	4.1%	1.9%
	1991	3,767,000	159,800	4.2%	78,211	2.1%	4.2%	1.9%
P	1992	3,858,825	161,283	4.2%	74,385	1.9%	4.2%	1.9%
R	1993	3,946,975	166,127	4.2%	76,851	1.9%	4.2%	1.9%
O	1994	4,036,875	171,097	4.2%	79,386	2.0%	4.2%	2.0%
J	**1995**	**4,134,925**	**176,467**	**4.3%**	**82,117**	**2.0%**	4.3%	2.0%
E	1996	4,234,275	181,951	4.3%	84,913	2.0%	4.3%	2.0%
C	1997	4,334,300	187,523	4.3%	87,761	2.0%	4.3%	2.0%
T	1998	4,433,925	193,136	4.4%	90,639	2.0%	4.4%	2.0%
I	1999	4,533,375	198,800	4.4%	93,553	2.1%	4.4%	2.1%
O	**2000**	**4,632,875**	**204,524**	**4.4%**	**96,506**	**2.1%**	4.4%	2.1%
N	**2005**	**5,132,725**	**234,131**	**4.6%**	**111,904**	**2.2%**	4.6%	2.2%
S	**2010**	**5,652,525**	**266,145**	**4.7%**	**128,727**	**2.3%**	4.7%	2.3%

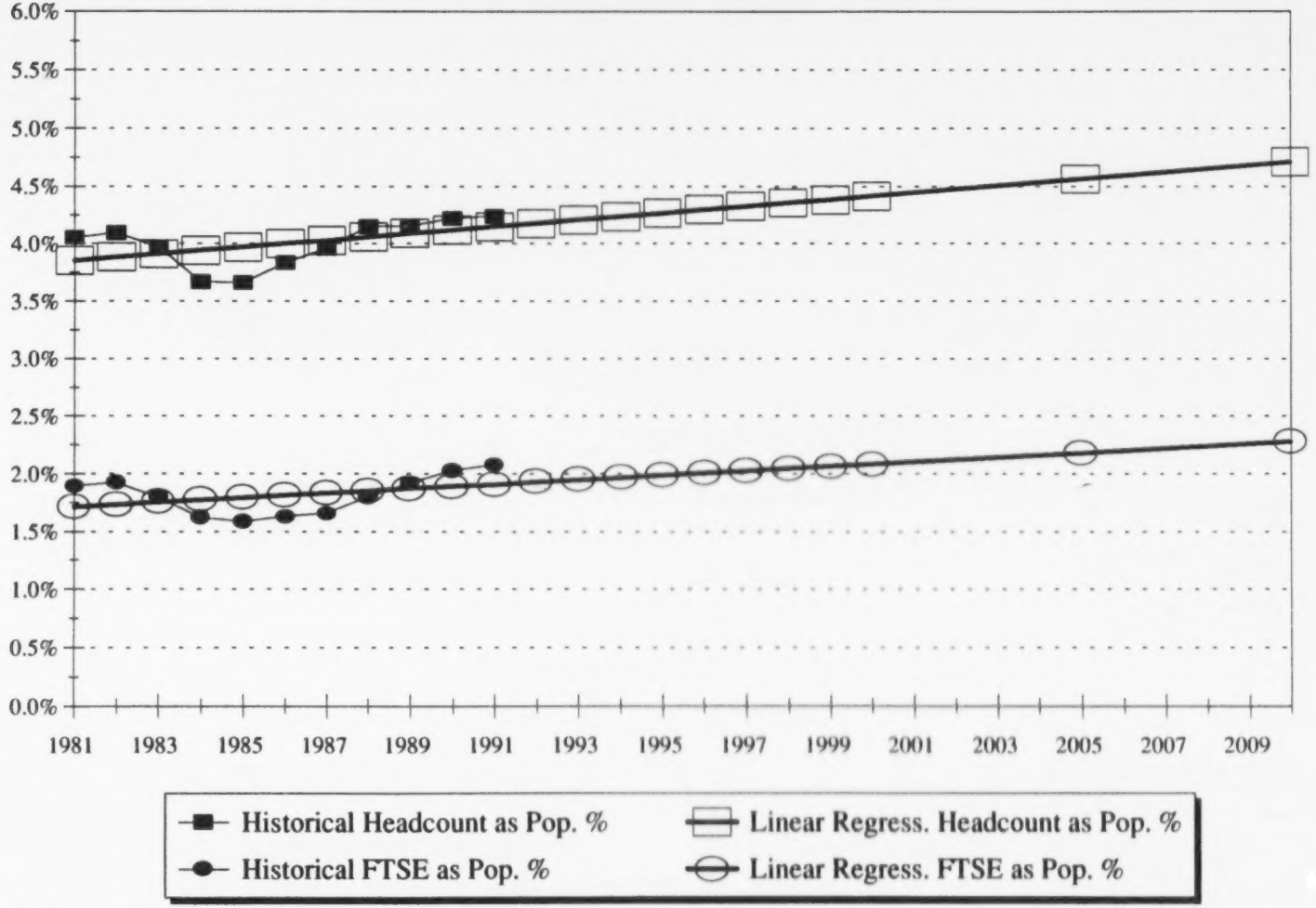
Linear Regression of Headcount as % of Population (x = year)		
Regression Output:		
Constant		-0.5434474
Std Err of Y Est		0.00188889
R Squared		0.22820804
No. of Observations		11
Degrees of Freedom		9
X Coefficient(s)	0.0002938	
Std Err of Coef.	0.0001801	

Linear Regression of FTSE as % of Population (x = year)		
Regression Output:		
Constant		-0.3677016
Std Err of Y Est		0.00167294
R Squared		0.14149083
No. of Observations		11
Degrees of Freedom		9
X Coefficient(s)	0.00019427	
Std Err of Coef.	0.00015951	

Projections of AZ. Community College Enrollment (% of Population Method)



Projections of % Population Enrolled in Com. Colleges (Linear Regression)

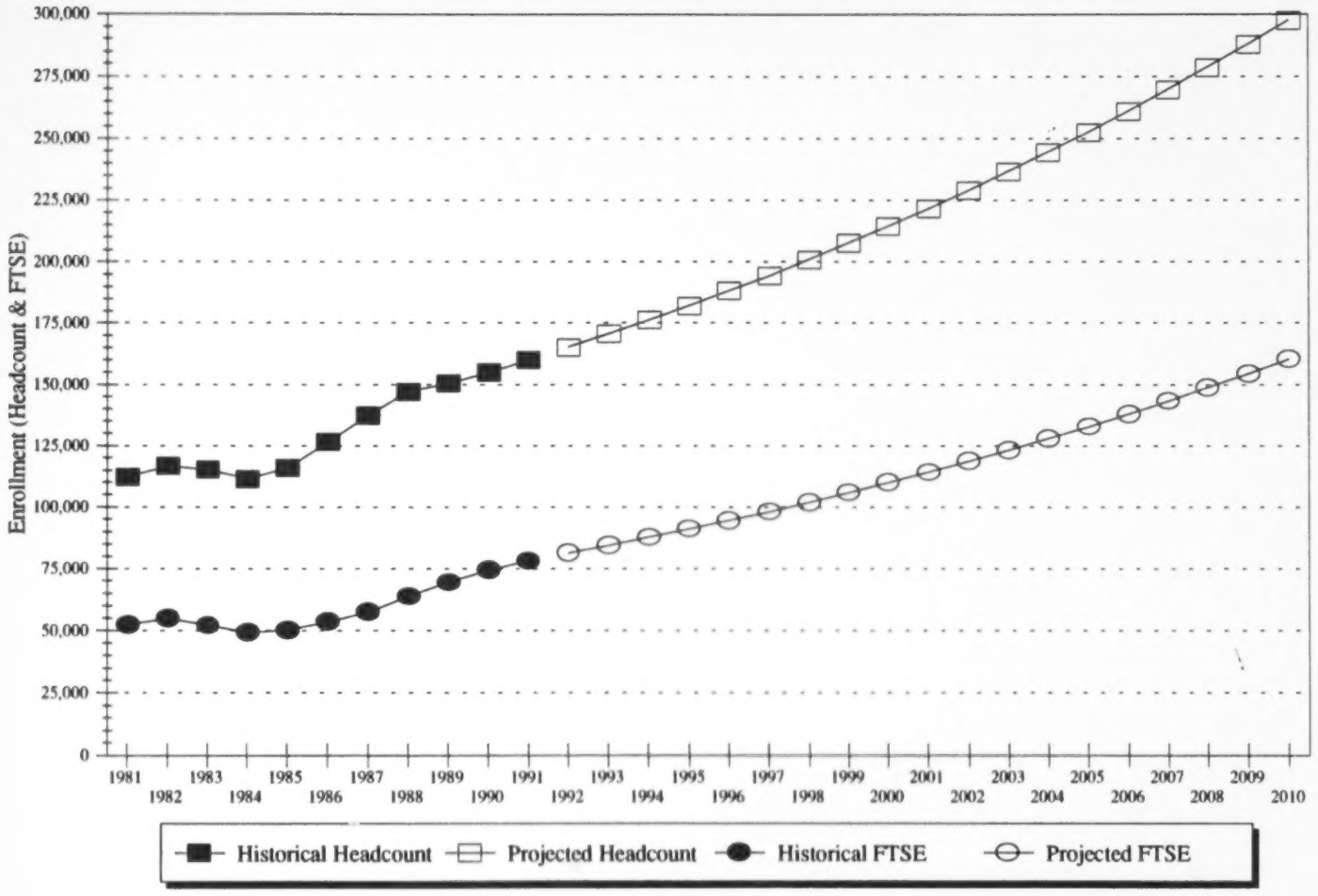


Appendix A, page 3

Projections of Enrollment by Compounded Annual Rate
(Based of Average of Rate of Change from 1981 to 1991)

	YEAR	Population	Rate of Change from Previous year	Fall Headcount	Rate of Change from Previous year	Academic Year FTSE	Rate of Change from Previous year
	1981	2,767,500	BASE	112,311	BASE	52,347	BASE
	1982	2,846,400	2.9%	116,629	3.8%	54,748	4.6%
H	1983	2,898,400	1.8%	115,089	-1.3%	52,070	-4.9%
I	1984	3,032,400	4.6%	111,356	-3.2%	49,119	-5.7%
S	**1985**	**3,162,900**	4.3%	**115,900**	4.1%	**50,101**	2.0%
T	1986	3,291,600	4.1%	126,356	9.0%	53,650	7.1%
O	1987	3,459,900	5.1%	137,168	8.6%	57,281	6.8%
R	1988	3,538,400	2.3%	146,844	7.1%	63,659	11.1%
Y	1989	3,617,300	2.2%	150,254	2.3%	69,384	9.0%
	1990	**3,665,228**	1.3%	**154,831**	3.0%	**74,331**	7.1%
	1991	3,767,000	2.8%	159,800	3.2%	78,211	5.2%
	1992	3,858,825	2.4%	165,113	3.3%	81,223	3.9%
	1993	3,946,975	2.3%	170,602	3.3%	84,350	3.9%
	1994	4,036,875	2.3%	176,274	3.3%	87,598	3.9%
	1995	**4,134,925**	2.4%	182,135	3.3%	90,971	3.9%
P	1996	4,234,275	2.4%	188,190	3.3%	94,474	3.9%
R	1997	4,334,300	2.4%	194,447	3.3%	98,112	3.9%
O	1998	4,433,925	2.3%	200,912	3.3%	101,890	3.9%
J	1999	4,533,375	2.2%	207,591	3.3%	105,813	3.9%
E	**2000**	**4,632,875**	2.2%	214,493	3.3%	109,887	3.9%
C	2001	4,732,200	2.1%	221,624	3.3%	114,119	3.9%
T	2002	4,831,775	2.1%	228,993	3.3%	118,513	3.9%
I	2003	n/a	n/a	236,606	3.3%	123,076	3.9%
O	2004	n/a	n/a	244,472	3.3%	127,815	3.9%
N	**2005**	**5,132,725**	n/a	252,600	3.3%	132,737	3.9%
S	2006	n/a	n/a	260,998	3.3%	137,848	3.9%
	2007	n/a	n/a	269,676	3.3%	143,156	3.9%
	2008	n/a	n/a	278,641	3.3%	148,668	3.9%
	2009	na/	n/a	287,905	3.3%	154,393	3.9%
	2010	**5,652,525**	n/a	297,477	3.3%	160,338	3.9%

Projections of AZ. Community College Enrollment (Compnd Growth Rate Method)

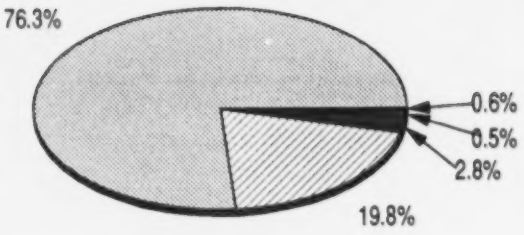


Arizona Population	1980	1990	Difference	% Change from 1980	Relative Change	As % of Difference
non-Minority	2,038,288	2,630,460	592,172	29.1%	21.8%	62.5%
% of Population	75.0%	71.8%				
Minority	679,927	1,034,768	354,841	52.2%	13.1%	37.5%
% of Population	25.0%	28.2%				
Total	2,718,215	3,665,228	947,013	34.8%	34.8%	100.0%
Am. Ind.	145,308	190,091	44,783	30.8%	1.6%	4.7%
% of Population	5.3%	5.2%				
African Am.	73,245	104,809	31,564	43.1%	1.2%	3.3%
% of Population	2.7%	2.9%				
Asian Am.	20,673	51,530	30,857	149.3%	1.1%	3.3%
% of Population	0.8%	1.4%				
Hispano	440,701	688,338	247,637	56.2%	9.1%	26.1%
% of Population	16.2%	18.8%				

Arizona Community College Headcount	Fall 1981	Fall 1991	Difference	% Change from 1980	Relative Change	As % of Difference
non-Minority	91,760	123,496	31,736	34.6%	28.3%	66.8%
% of Headcount	81.7%	77.3%				
Minority	20,548	36,304	15,756	76.7%	14.0%	33.2%
% of Headcount	18.3%	22.7%				
Total	112,308	159,800	47,492	42.3%	42.3%	100.0%
Am. Ind.	4,013	5,042	1,029	25.6%	0.9%	2.2%
% of Headcount	3.6%	3.2%				
African Am.	3,620	5,162	1,542	42.6%	1.4%	3.2%
% of Headcount	3.2%	3.2%				
Asian Am.	1,524	3,454	1,930	126.6%	1.7%	4.1%
% of Headcount	1.4%	2.2%				
Hispano	11,391	22,646	11,255	98.8%	10.0%	23.7%
% of Headcount	10.1%	14.2%				

Source: 1980 and 1990 Census for Arizona and SBDCCA Annual Reports to the Governor

Arizona Levels of Income by Race/Ethnicity
(Persons 25 years or Older)



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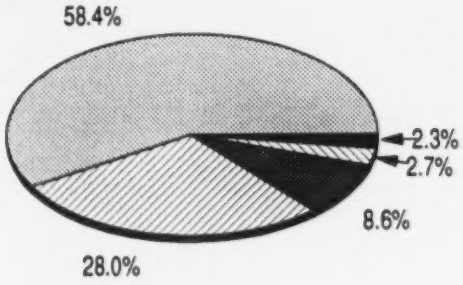

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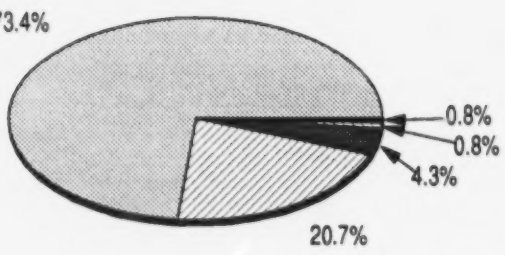

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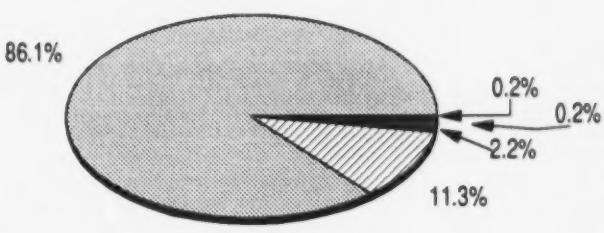

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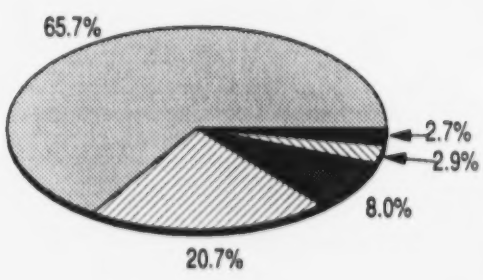

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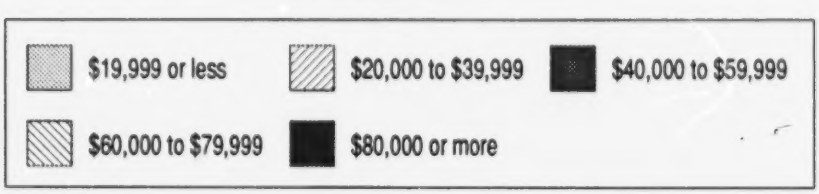
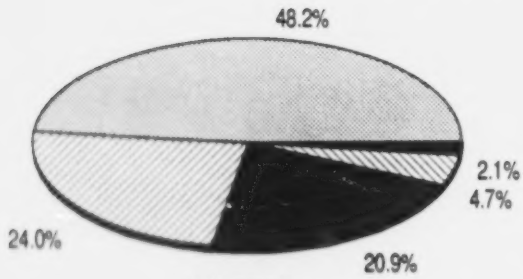


Prepared by David C. Rubi, SBDCCA

Appendix C, page 2

Educational Attainment of Persons 25 Years or Older by Ethnic/Race Group



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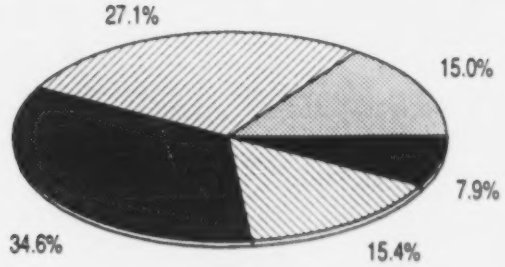

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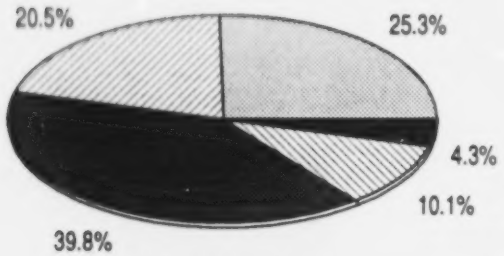
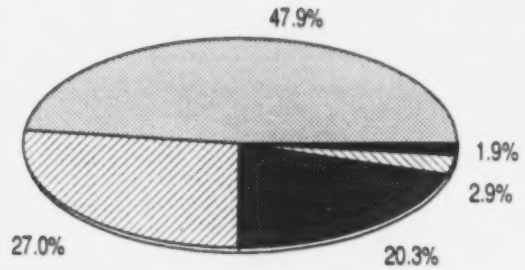


African American



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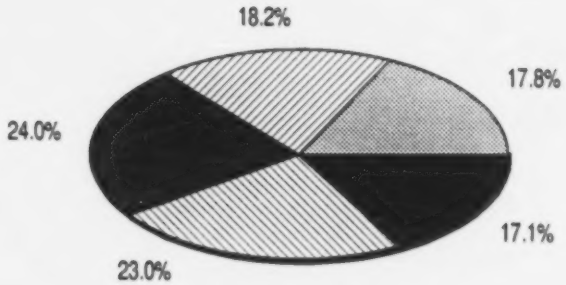
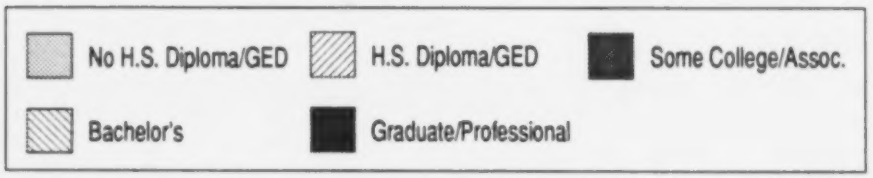


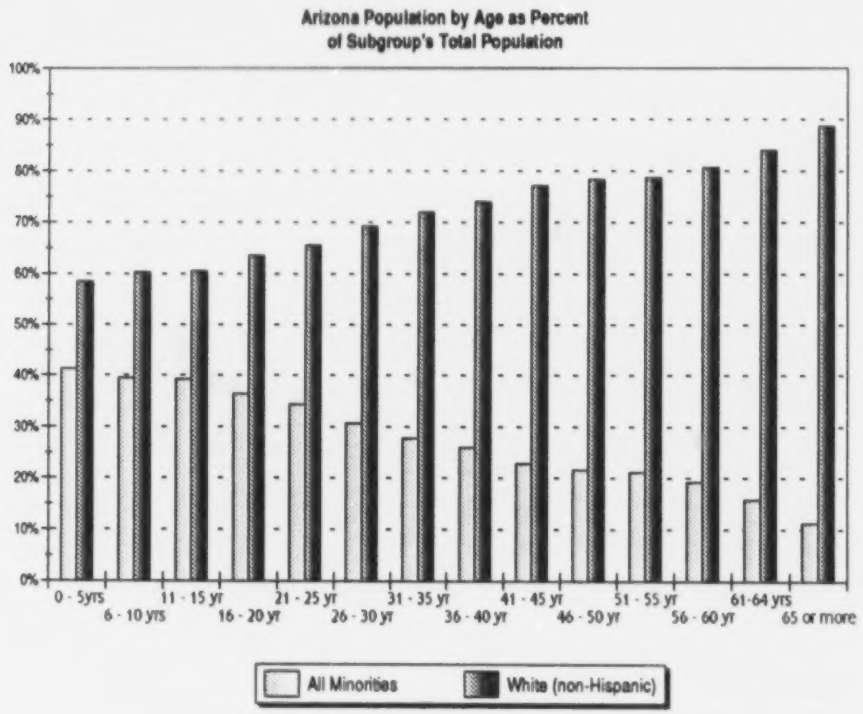
Asian American



Prepared by David C. Rubi, SBCCCA, April 4, 1990

Appendix C, page 3

1990 CENSUS BY AGE	ARIZONA							
Number	TOTAL	AMIND	ASIAN	BLACK	HISPN	NH-WH	OTHER	MINORITY
0 - 5yrs	350798	29408	5023	13023	97484	205103	757	144938
6 - 10 yrs	279617	22087	3790	9915	74851	168497	477	110643
11 - 15 yrs	252055	19549	3617	8725	67079	152600	485	98970
16 - 20 yrs	270712	18232	4851	9465	66058	171697	409	98606
21 - 25 yrs	283201	16591	5278	9577	65687	185698	370	97133
26 - 30 yrs	325733	17164	5898	10963	65816	225526	366	99841
31 - 35 yrs	308881	14628	5627	9830	55958	222505	333	86043
36 - 40 yrs	276532	11799	4704	8221	46931	204620	257	71655
41 - 45 yrs	232327	9066	3514	5668	34778	179130	171	53026
46 - 50 yrs	185578	7331	2475	4225	26077	145312	158	40108
51 - 55 yrs	152137	6039	1835	3487	20931	119735	110	32292
56 - 60 yrs	147789	5155	1658	3087	18535	119260	94	28435
61-64 yrs	121094	3265	1033	1992	12877	101870	57	19167
65 or more	478774	9777	2227	6631	35276	424632	231	53911
Column Totals:	3665228	190091	51530	104809	688338	2626185	4275	1034768
	3665228	190091	51530	104809	688338	2626185	4275	1034768



Historical & Projected Community College Non-Minority and Minority Make-Up Compared to Historical & Projected Population Make-Up

Group		1980 Enrollment	1980 Population	1990 Enrollment	1990 Population	2000 Enrollment	2000 Population	2010 Enrollment	2010 Population
Minority	#	20,810	679,927	34,685	1,034,768	47,870	1,556,253	72,675	2,121,326
	%	18.6%	25.0%	22.4%	28.2%	24.8%	32.1%	29.0%	36.1%
Non-Minority	#	84,018	2,026,262	114,588	2,626,185	145,207	3,290,260	177,521	3,762,739
	%	75.0%	74.5%	74.0%	71.7%	75.2%	67.9%	71.0%	63.9%
Total	#	112,003	2,718,215	154,831	3,665,228	193,077	4,846,514	250,196	5,884,065

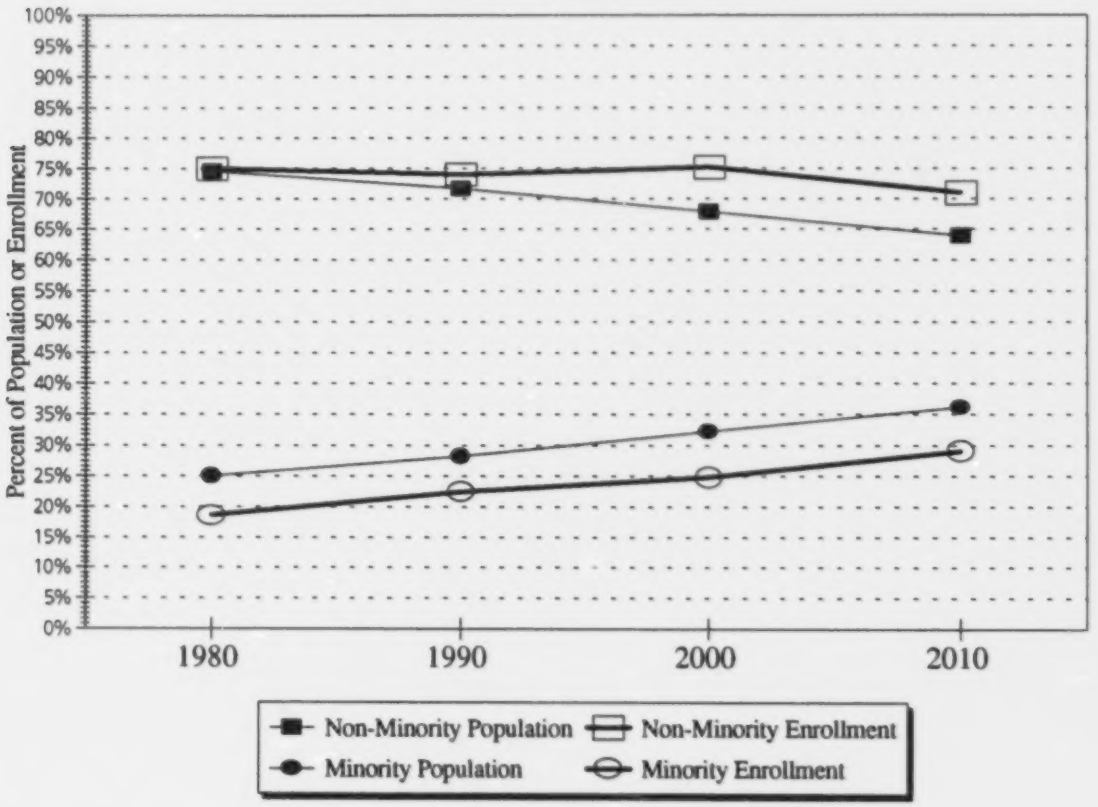
The above table and accompanying graphics were prepared by David C. Rabi, SBDCCA.

Notes: 1. The term "minority" includes Hispanics (any race), Native American (non-Hispanic), African American (non-Hispanic), and Asian American (non-Hispanic).
The above numbers do not include numbers for the "Other (non-Hispanic)" or "Undeclared" categories, which will account for the percentages not adding to 100%.
Please note that the ABOR projections for population and 2-year (community college) enrollment demand do not include projections for these categories.

2. Historical Enrollments are from the SBDCCA Annual Report to the Governor and Reflect make-up for Fall semester of the years indicated.

3. Population projections and 2-year (community college) enrollment demand data are from the Arizona Board of Regents (ABOR) Frances Model.

Historical & Projected Trends for Arizona Population & C.C. Enrollment



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Report Cites Decline In Salary Increases

For the second year in a row, average faculty salary increases in the U.S. declined, a survey by the American Association of University Professors (AAUP) shows.

Faculty salaries rose by 2.5 percent in 1992-93, compared with 3.5 percent in 1991-92 and 5.4 percent in 1990-91. This year's increase was the lowest recorded in the 22-year history of the **Annual Report on the Status of the Profession**. The 1992-93 salary level represents a decrease of 0.4 percent after inflation.

Average salaries rose by 3.8 percent at independent colleges and 4.2 percent at church-related institutions, while public institutions reported a 1.9 percent increase. The survey of more than 2,200 colleges and universities showed the average salary to be $51,570 for private institutions, $46,000 for public schools, and $40,370 for church-related institutions.

The recession seems to have played a major role in the sluggish salary growth rates. Public institutions with the smallest increases were those in states hit hard by the recession, especially in the Pacific region and the Northeast. Daniel S. Hamermesh, professor of economics at Michigan State University and chair of AAUP's Committee on the Economic Status of the Profession, also notes a possible trend of taxpayers refusing to pay for higher salaries at public institutions.

Another recent survey, conducted by the College and University Personnel Association (CUPA) and Appalachian State University (NC), confirms AAUP's findings that salaries at private institutions have risen, but not as substantially as in previous years. CUPA found that salaries grew 3.4% percent for the 1992-93 academic year, with the average salary at $42,786, compared with a 4.2 percent rise in 1991-92, when the average salary stood at $41,349.

Salaries of female faculty continue to lag behind those of males. The average salary for male full professors is $60,620; for female full professors, $53,460. Figures show that although the number of female faculty is growing, the gap between men's and women's salaries has not changed significantly over the past 10 years.

The 1992-93 Annual Report on the Status of the Profession is available for $45 from AAUP, Suite 500, 1012 14th St., NW, Washington, DC 20005, (202) 737-5900. CUPA's **1992-93 National Faculty Salary Survey by Discipline and Rank in Private Colleges and Universities** can be obtained from CUPA, Suite 301, 1233 20th St., NW, Washington, DC 20036-1250, (202) 429-0311. The price is $30 for survey participants, $50 for nonparticipating CUPA members, and $75 for nonparticipating nonmembers. ■

Facts In Brief

Number of High School Graduates May Rise in the 1990s

■ By June 30, U.S. high schools are expected to have awarded 2.48 million diplomas for academic year 1992-93, the U.S. Department of Education's National Center for Education Statistics (NCES) has projected. That figure is almost identical to last year's estimate of 2.485 million and is at the bottom of a slide in the number of high school graduates that began after 1977, when a record-high 3.2 million diplomas were awarded.

■ NCES predicts that the number of graduates will increase by 1 percent next year, to 2.506 million. Figures for the rest of the decade show annual increases, with the total expected to reach nearly 3 million by the year 2000.

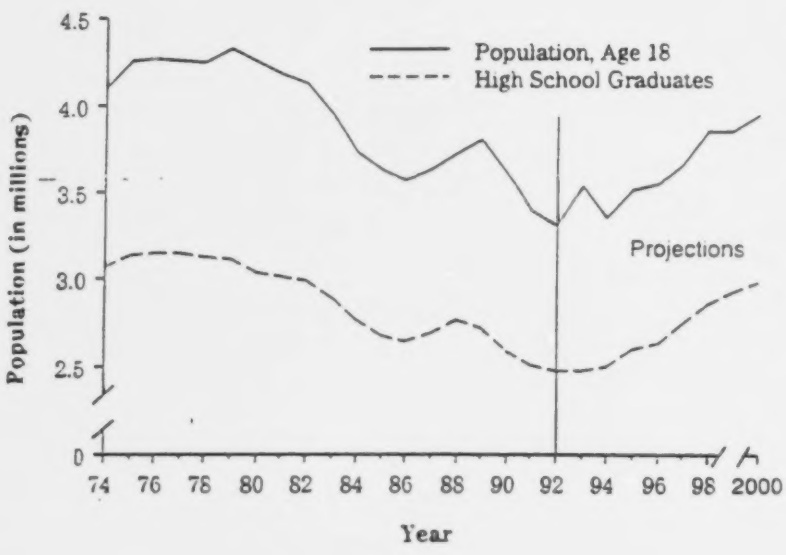
■ The principal force behind these figures is the changing number of high school age youth. The Bureau of the Census estimates that the size of the 18-year-old population bottomed out in 1992 at 3.3 million, down from a "baby boomer" high of 4.3 million in 1979.

■ The Census projects that the number of 18-year-olds will increase to 3.5 million this year, but return to 3.3 million in 1994. After that, the size of this age cohort is expected to increase steadily to 3.9 million at the end of the century.

■ The proportion of 18-year-olds who completed high school hovered in the range of 73 percent to 75 percent during most of the 1980s. In 1989 and 1990, the share dropped to 72 percent, but throughout the 1990s, it is expected to remain in the mid-70 percent range.

This profile was compiled by Charles Andersen of the American Council on Education's Division of Policy Analysis and Research. For further information, call (202) 939-9450.

Annual Number of High School Graduates And 18-Year-Old Population, 1974-2000



Source: U.S. Department of Education, National Center for Education Statistics, **Projections of Education Statistics to 1997-98**, **Projections of Education Statistics to 2003**, and **120 Years of American Education: A Statistical Portrait**. The reports are available from the Government Printing Office, Washington, DC 20402, (202) 783-3238.

Appendix D

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